

## CLAIMS

### What is claimed is

- 5           1. An assay procedure for determining the amount of each lipid and/or proportionate amount of each lipoprotein analyte in serum, comprising:

obtaining a volume of serum;

10           obtaining a reaction mixture of an acylating compound having the formula  $R-CO-R$ , and a predetermined amount of perchlorate ion;

reacting said volume of serum with said reaction mixture to produce a colored product;

15           measuring the spectral data for the colored product;

applying multiple wavelength detection with multivariate statistical analyses to determine the amount of analyte.

- 20           2. The assay procedure of claim 1 wherein the perchlorate ion is present in the acylating compound in a concentration sufficient to form a spectrophotometrically active product with cholesterol.

3. The assay procedure of claim 1 wherein the perchlorate ion is selected from a group consisting of barium perchlorate, zinc perchlorate and perchloric acid.

5 4. The assay procedure of claim wherein the perchlorate ion is selected from a group consisting of  $\text{HClO}_4$  and  $\text{Zn}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$ .

5. The assay procedure of claim 1 wherein R is selected from a group consisting of lower alkyl radicals.

10 6. The assay procedure of claim 5 wherein the lower alkyl radical is a methyl alkyl radical.

15 7. The assay procedure of claim 1 wherein  $\text{R}_1$  is a halogen.

8. The assay procedure of claim 1 wherein the halogen is a chloride ion.

9. The assay procedure of claim 1 wherein the spectral data is measured over the entire visible range.

20 10. The assay procedure of claim 1 wherein the spectral data is measure using a fast scanning spectrophotometer.

11. The assay procedure of claim 1 further comprising adding a volume of glacial acetic acid to said colored product prior to measuring the spectral data.

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12. The assay procedure of claim 1 wherein the spectral data is measured using simultaneous dual scan wavelength detection.

13. The assay procedure of claim 1 further comprising separating precipitated materials from the colored product prior to measuring the spectral data.

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14. The assay procedure of claim 11 wherein the spectral data is measured using a spectrofluorimeter.